Roots and Trunks, Beaks and Claws

Written by Nancy Day

California Education and the Environment Initiative
Science Standard 3.3.a.

My Observations

Date: June 15

Place: Sierra National Forest, near Big Creek , California

The Sun is rising.

I am sitting under a tall lodgepole pine.

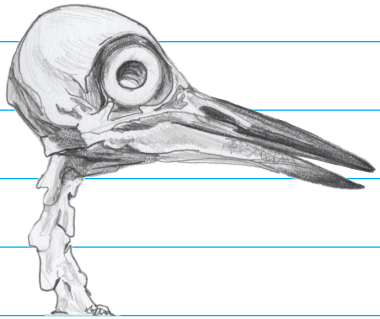
The ground is still wet with dew.

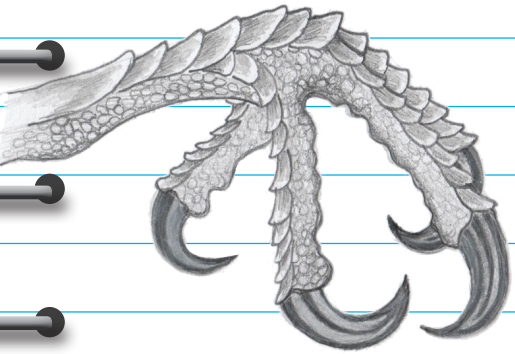
Underneath me, the pine's roots spread out to soak up water and nutrients from the ground.
Much of it comes from melted snow.
Water keeps this tree living and growing.
The creek makes rushing and bubbling sounds nearby.

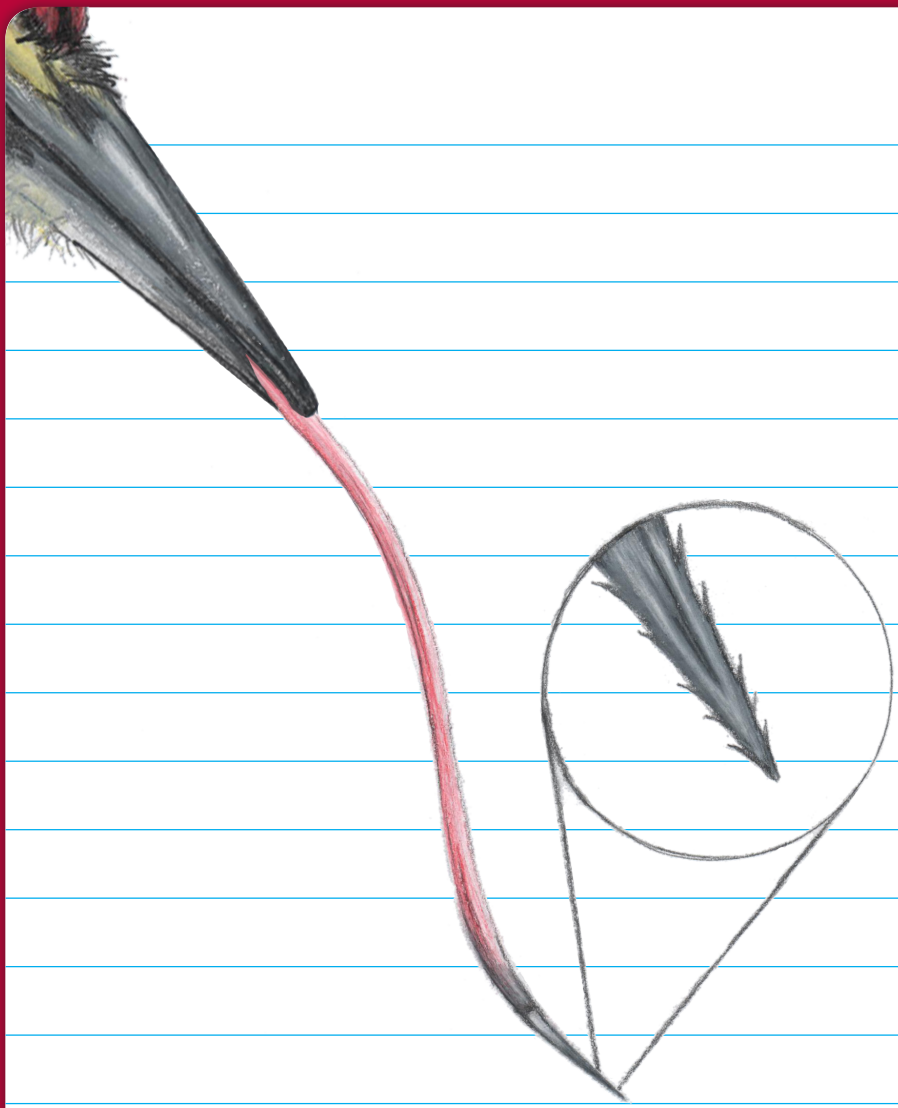
Suddenly, I hear tap-tap-tap.

I spot a pileated woodpecker male.

Its hard, sharp beak bores into a lodgepole pine trunk.
Its toes—two in front and two in back—claw into the bark.
Stiff tail feathers steady the bird as it hammers.
Good thing its skull has spongy parts to soften the blow!







The woodpecker's long tongue stretches into the hole it has made.

The bird uses hooks on the end of its tongue to catch insects.

Some bugs—such as mountain beetles—might have killed the tree.

Now they are food for the woodpecker.

The pileated woodpecker flies into a large hole it bored in the dead top of a pine.

"Waaa!" it calls to its mate.

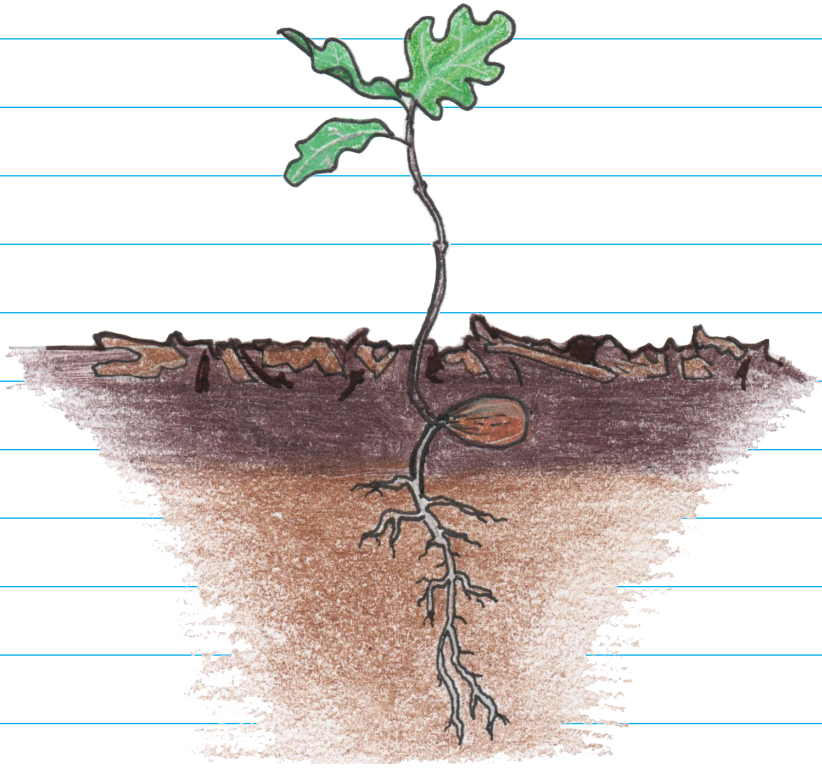
I hear the sound of feathers ruffling.

The bird must be sharing the food with fledglings in the nest.

The pileated woodpecker female pops out. It flies to a nearby black oak tree. With its beak, the mother bird cracks an acorn to eat.

I see a few black oak trees here.
Some pollen from the trees blows onto my shirt.
Some tiny green acorns are on the tree branches.
The acorns are hard to see among the leaves.
The broad leaves take in plenty of air and sunlight.

The green leaves make food.
This helps the oak grow and make acorns in summer.



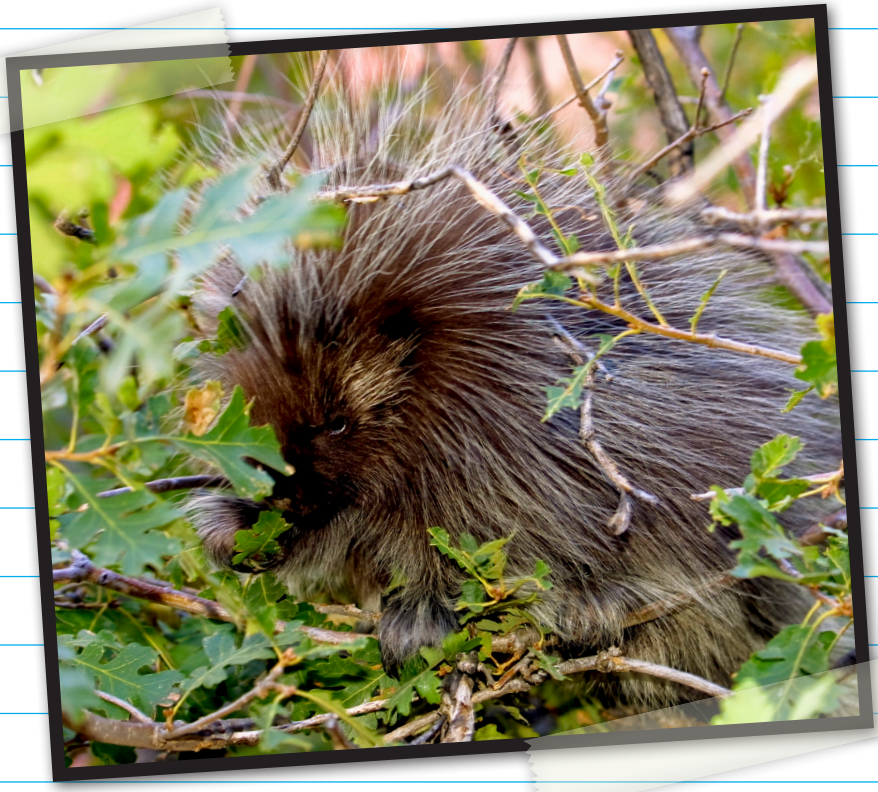
The oak also has a tap root that grows deep under the ground.
Through the tap root, the oak gets water during the dry summer ahead.

A fisher climbs down a nearby black oak tree!
The animal digs its claws into the tree trunk.

Its back paws can turn around.

Now the fisher scampers down headfirst.

It surprises a porcupine on the ground.
With sharp teeth, the fisher goes for the porcupine's face while avoiding its sharp quills.
This porcupine will not strip any pine bark this winter.
Instead, the porcupine will be food for the fisher and its young.



In a hollow high in the black oak tree, I see two little fisher faces peeking out.

Now the Sun is high in the sky.
The lodgepole pine grows straight and tall
to get more sunlight.

It has many short needles in place of leaves. The needles need sunlight. They help the tree to grow.

A pinecone hits me on the head!

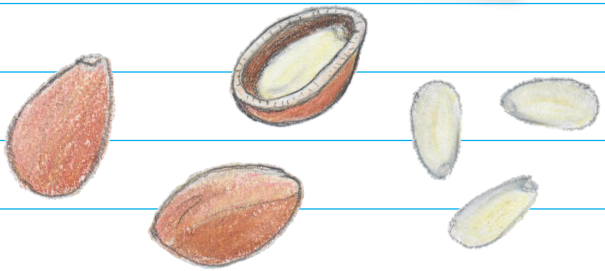
Cones grow thick on this tree's branches.

I count about 1,000 cones on this one tree.

The cone protected the seeds within it from freezing in winter.

Now, in the warmth of summer, the cone has opened.

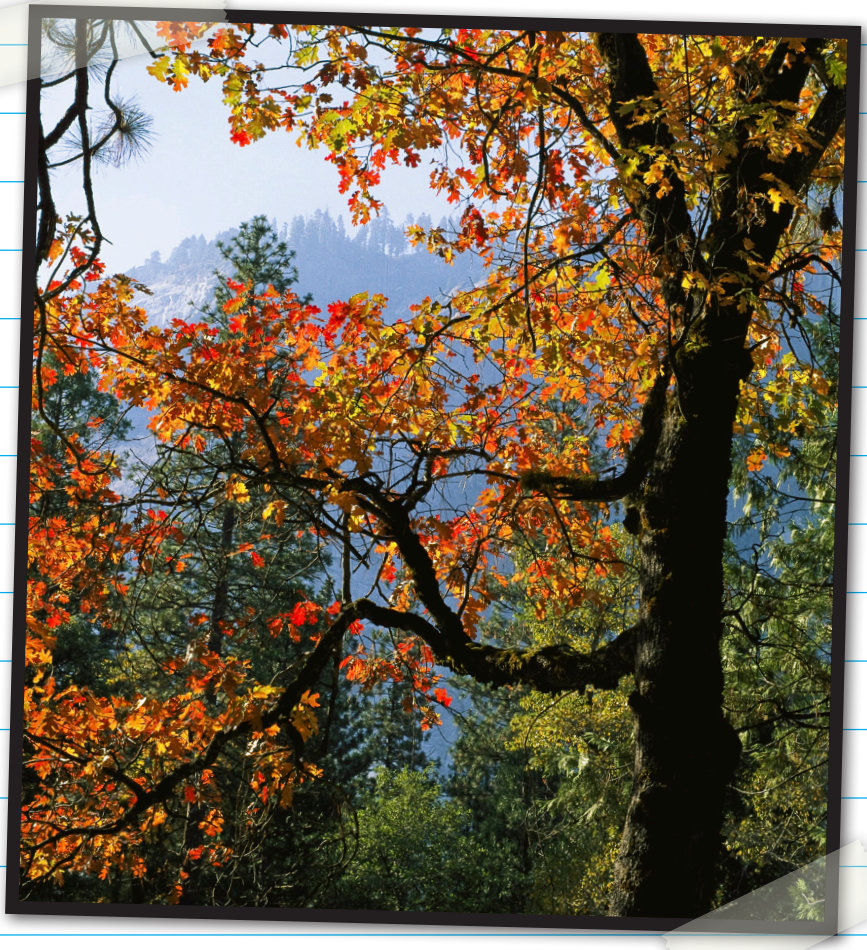
I count 20 seeds inside.



Most seeds can grow into new trees.

I can see lodgepole pine seedlings around me.

They grow under black oaks. The oaks' spreading branches keep grass and other plants from crowding out the lodgepole seedlings.



Unit Title: **Structures for Survival in a Healthy Ecosystem**
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